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☐ 1. Document ID: US 20040001457 A1

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L11: Entry 1 of 15 File: PGPB Jan 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040001457
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040001457 A1

TITLE: System for facilitating personal communications with multiple wireless transmit/receive units

PUBLICATION-DATE: January 1, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
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US-CL-CURRENT: 370/328; 370/338, 455/433

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 2. Document ID: US 20030187971 A1

L11: Entry 2 of 15 File: PGPB Oct 2, 2003

DOCUMENT-IDENTIFIER: US 20030187971 A1
TITLE: Enterprise macro-manager of contact center communications technologies

Summary of Invention Paragraph:
[0012] Accordingly, the present invention was developed to solve the foregoing problems of managing a heterogeneous collection of communications technologies. An enterprise macro-manager is provided in the form of a central management server that can be configured to talk to a variety of communication products and that allows an enterprise to coordinate customers communicating through all these different products to be treated as one seamless communication infrastructure.

Detail Description Paragraph:
[0028] Every communications technology connector consists of three distinct layers: an EMM channel interface layer, the interface translation layer, and the vendor/product specific application programming interface (API) layer. COM-based connectors may be in-process or out-of-process servers. It is recommended that an

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out-of-process server approach be used. The EMM channel interface contains interface data that is mandatory for each communications technology connector implementation. The EMM channel interface also contains interface data that is specific to the communication technology supported by the communication technology. For example, for an e-mail communication technology connector, the e-mail specific EMM channel interface data needs to be implemented. The interface translation layer builds a bridge between the vendor API and EMM channel interface. The EMM channel interface requires that a communications technology connector maintain the channel state and a logical binding to the application managing the channel. The EMM channel interface delivers events and state changes for the channels initiated by managing applications, and then the vendor API delivers events and state changes initiated by the communications technology. The interface translation layer then maintains the states and bindings, mapping the states and functionality of the vendor API to the standard states and functions of the EMM, maintaining synchronization of the channel and managing application. Examples of channel state that are implemented in the EMM channel interface are: Null, Initiated, Alerting, Connected, Held, Queued, Failed, and Offered. Examples of the states implemented for managing applications are: Ready, Not Ready, Work Ready, and Work Not Ready. The vendor API layer will vary by communications technology and may implement similar functionality to what is implemented in the EMM. This is expected and is handled by the interface translation layer and EMM channel interface.

Detail Description Paragraph:
[0033] The Agent Manager Module is responsible for handling Agent State such as WorkMode and Queue Login/out status. It coordinates this information across all communication technologies and CTI Servers.

Detail Description Paragraph:
[0035] The Data Store Module is responsible for handling all interface data called "Contact Associated Data". The Data Store Module coordinates this interface data across all communication technologies and CTI Servers.

☐ 3. Document ID: US 20030182624 A1

L11: Entry 3 of 15 File: PGPB Sep 25, 2003

DOCUMENT-IDENTIFIER: US 20030182624 A1
TITLE: Method and apparatus for developing web services using standard logical interfaces to support multiple markup languages

Detail Description Paragraph:
[0055] Second, WSDL defines a direct relationship between operations and messages. Essentially, the entire content of a message is defined by the logical content and binding method of a single operation. WSDK, on the other hand, introduces an intermediate runtime-only entity known as a call. A call contains a batch (one or more) of operations to be executed in the context of a single request/reply message exchange. Batching is an optional runtime decision made by the client and is only available via the client APIs provided with WSDK. A batch of operations is defined dynamically by a client, based on a previously defined (static) operation structure definition. Thus, a client may dynamically select particular portions of an operation structure definition to incorporate into a message (a batched request), according to its current needs and/or the current state of application execution. Note that messages generated from a call containing only one operation are

identical to those defined via WSDL.

Detail Description Paragraph:
[0076] The Service WSDL Specifications 9B are the WSDL specifications (logical and binding descriptions only) that correspond to the operations of the service. They are provided as an alternative to using the client APIs. Note that WSDL location information (e.g., host and port) is not provided by WSDK, since it depends upon information known only at deployment. Clients that intend to use WSDL specifications must obtain the location information via another facility.

Detail Description Paragraph:
[0081] Run OSDGen 1 again (with different options) to generate the client-side interface artifacts (block 204), including: Logical and binding portions of WSDL specifications for the service. Fault message catalogs that can then be localized for display of human-readable fault messages; and client APIs.

Detail Description Paragraph:
[0094] The roles of the key classes/objects of the WSF 3 will now be described. The OipsCallMgr object coordinates the call dispatch process. This object is responsible for initializing the call context and resources, for dispatching the operation executions, and for all major error handling and transaction management logic. The OipsCallMgr is a concrete class (no subclassing) with a single instance that exists for the lifetime of the server. The functionality of this class is described further below.

4. Document ID: US 20030182364 A1

L11: Entry 4 of 15 File: PGPB Sep 25, 2003

DOCUMENT-IDENTIFIER: US 20030182364 A1
TITLE: Method and apparatus for requesting and performing batched operations for web services

Detail Description Paragraph:
[0055] Second, WSDL defines a direct relationship between operations and messages. Essentially, the entire content of a message is defined by the logical content and binding method of a single operation. WSDK, on the other hand, introduces an intermediate runtime-only entity known as a call. A call contains a batch (one or more) of operations to be executed in the context of a single request/reply message exchange. Batching is an optional runtime decision made by the client and is only available via the client APIs provided with WSDK. A batch of operations is defined dynamically by a client, based on a previously defined (static) operation structure definition. Thus, a client may dynamically select particular portions of an operation structure definition to incorporate into a message (a batched request), according to its current needs and/or the current state of application execution. Note that messages generated from a call containing only one operation are identical to those defined via WSDL.

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information known only at deployment. Clients that intend to use WSDL specifications must obtain the location information via another facility.

Detail Description Paragraph:
[0081] Run OSDGen 1 again (with different options) to generate the client-side interface artifacts (block 204), including: Logical and binding portions of WSDL specifications for the service. Fault message catalogs that can then be localized for display of human-readable fault messages; and client APIs.

Detail Description Paragraph:
[0094] The roles of the key classes/objects of the WSF 3 will now be described. The OipsCallMgr object coordinates the call dispatch process. This object is responsible for initializing the call context and resources, for dispatching the operation executions, and for all major error handling and transaction management logic. The OipsCallMgr is a concrete class (no subclassing) with a single instance that exists for the lifetime of the server. The functionality of this class is described further below.

☐ 5. Document ID: US 20030089777 A1

L11: Entry 5 of 15 File: PGPB May 15, 2003

DOCUMENT-IDENTIFIER: US 20030089777 A1
TITLE: Method and system for authoring and playback of audio coincident with label detection

Summary of Invention Paragraph:
[0007] U.S. Pat. No. 5,877,458 describes an electrographic sensor unit and method for determining the position of a user selected position thereon. The electrographic sensor unit includes a layer of a conductive material having an electrical resistance and a surface with spaced apart contacts to selectively apply a signal to each of the contact points. This apparatus determines a surface location touched by a user using either a probe assembly or finger and triggers playback of audio that is pre-authored for that location. One drawback of this scheme is the tight constraint imposed by the coordinate determination scheme on the objects that can be labeled. For example, the invention does not permit labeling and annotating of different physical objects because the authored content is tightly bound to the different coordinates on the surface of a single object as opposed to content on different objects. Even within a single object, since binding is done to coordinates, additional cues are required by the system to determine the context of the coordinate. For example, if a book is annotated using this invention, additional page cues are required to resolve the ambiguity of the coordinates since all pages return the same coordinates for a particular contact locus. This deficiency is further apparent when there is a need to author content for different physical objects. Even though the sensor unit can be embedded on complex three-dimensional surfaces, it requires that each of the objects have the location determination scheme within them. A single location sensing device cannot be used to annotate objects of disparate dimensions and shapes.

Detail Description Paragraph:
[0039] FIG. 4 illustrates an audio binder hierarchical system 400 for logically aggregating a plurality of audio clips to one or more labels. In this embodiment of the invention, a binder node 410 combines label index values 421A-N, where N is at

least one, into an index table 420. Index table 420 associates label index values 421A-N with audio clips 424A-N by using pointers 422A-N, thereby forming a logical hierarchy of multiple labels and audio content for a node. Pointers 422A-N comprise information pertaining to, for example, a storage location or HTTP link, thereby correlating each index value with one or more respective stored audio clips. One or more binder nodes, for example, binder nodes 410 and 430 as shown, form a top level of the hierarchical tree. Binder nodes 410 and 430 point to index tables 420 and 440, respectively, each comprising respective label index values 421A-N and 441A-N, and pointers 422A-N and 442A-N facilitating the retrieval and storage of audio clips 424A-N and 444A-N associated those index values. Logical binding facilitates memory management such as one-step deletion of all labels that are logically related. The hierarchical structure also enables quick navigation between binder nodes each representing, for example, authored audio for separate books, chapters in a book, or any object that is suitable for the aggregation of a group of labels and/or audio clips.

6. Document ID: US 20030033516 A1

L11: Entry 6 of 15 File: PGPB Feb 13, 2003

DOCUMENT-IDENTIFIER: US 20030033516 A1
TITLE: Rapid application security threat analysis

Detail Description Paragraph:
[0036] A wire 108 is the logical binding that defines a communication route between two ports 106 and is depicted as a bold line. Each wire 108 can be type-checked (i.e., protocols, roles) and defines protocol configuration constraints (e.g., HTTP requires TCP, TCP requires IP, etc.).

Detail Description Paragraph:
[0041] The particular security threats associated with any one model component will depend the function of that component. For example, the security threats that apply to a data store 104 or a wire 108 may include only a subset of the threats that apply to a module 102 that coordinates money transfers between entities. Thus, a data store or wire may indicate, for example, that there are possible threats to data privacy and a threat to data integrity. Whereas, a module may indicate, for example, a threat list including authentication, authorization, integrity, non-repudiation, privacy, and so forth.

7. Document ID: US 20030001857 A1

L11: Entry 7 of 15 File: PGPB Jan 2, 2003

DOCUMENT-IDENTIFIER: US 20030001857 A1
TITLE: Method and apparatus for determining logical texture coordinate bindings

Abstract Paragraph:
A computer system and method are provided for mapping of texture images. This may include a memory device to store a plurality of texture coordinates associated with vertices of three dimensional objects and a graphics device coupled to the memory device to process internal texture coordinates. A mapping system may appropriately route select ones of the plurality of texture coordinates from the memory device to the graphics device. The texture images may be mapped onto objects that, when rendered, include the image that may later be displayed on a display device.

Summary of Invention Paragraph:
[0001] The present invention is directed to a computer graphics architecture. More particularly, the present invention is directed to a method and apparatus for determining logical texture coordinate bindings.

Summary of Invention Paragraph:
[0004] The visual characteristics of the 2D representation of the 3D image may also be enhanced by texturing. Texture may represent changes in intensity, color, opacity, or thematic contents (such as surface material type). The process of applying texture patterns to surfaces (adding graphics to scenery) is generally referred to as "texture mapping" and is well known and a widely used technique in computer graphics. The texture may be represented by a 2D array of video data. Data elements in the array are called texels and the array is called a texture map. The two coordinate axes of the texture coordinate space are defined by rows and columns of the array typically designated in "U" and "V" coordinates.

Detail Description Paragraph:
[0028] Embodiments of the present invention will be described with respect to a computer system that includes a memory device to store a plurality of texture coordinates associated with vertices of three dimensional objects, a graphics device to couple to the memory device and to process internal texture coordinates for display, and a mapping system to appropriately route select ones of the plurality of texture coordinates from the memory device to the graphics device.

Detail Description Paragraph:
[0029] FIG. 4 illustrates a data array 250 that may be provided within the memory (such as the system memory 130). The array 250 may include a large amount of data relating to texture coordinates of the desired image(s). For example, the vertical axis represents the vertices of various triangular coordinates of the image and the horizontal axis represents XYZ data, color data and texture coordinates. For example, a first triangle may include vertices V0, V1 and V2, a second triangle may include vertices V3, V4 and V5, and a third triangle may include vertices V6, V7 and V8. Each of these vertices may be represented by data that may be used by a mapping engine (such as within the 3D engine 170, for example) of the present invention. That is, each of the vertices may correspond to X, Y and Z positional data, color data (such as R, G and B) as well as different texture coordinates. In the array 250 of FIG. 4, eight different texture coordinates are shown, namely texture coordinates TC0, TC1, TC2, TC3, TC4, TC5, TC6 and TC7. Other amounts of texture coordinates as well as other (or different) data may be provided within the array 250.

Detail Description Paragraph:
[0030] During texture mapping, select information of the array 250 may be passed from the memory (i.e., the system memory 130) to a graphics device (i.e., the GMCH 140) to appropriately prepare the image. However, it may be disadvantageous to transfer the whole array 250 from the memory to the graphics device as the array 250 may contain an extremely large amount of data and may need to be reformatted at the graphics device. Additionally, hardware (i.e., the graphics device) may only be capable of storing a predetermined number of texture coordinates at one time. For example, the graphics device may only be capable of simultaneously storing data

regarding four separate texture coordinates. Disadvantageous arrangements may require the use of software in the transfer of the array 250 to the graphics device. Some of the texture coordinates may be stripped from the array 250 after the array 250 has been transferred to the graphics device. This may involve the software copying the array 250 to an intermediate buffer and then passing select information in the intermediate buffer to the mapping engines. It is therefore desirable for a method and apparatus to transfer only select portions of the array 250 that will be used in the texture engines of the graphics device.

Detail Description Paragraph:
[0031] Embodiments of the present invention relate to a graphics device (such as the GMCH 140) supporting multiple texture mappings. A logical binding may be made between internal texture coordinate sets used by the device and externally-stored (i.e., within the system memory) vertex texture coordinates or a default value. The logical mapping may provide substantial flexibility with respect to the use, ordering and replication of vertex texture coordinates. Without this flexibility, the graphics driver may have to generate a second, rearranged copy of the vertex data at the costs of memory footprints, and additional processor overhead, complexity and thus lower system performance.

Detail Description Paragraph:
[0032] More specifically, a graphics device may support and use up to four internal texture coordinate sets for texture mapping. These internal coordinate sets may be either bound to one of eight vertex texture coordinate sets or a default value. The graphics device may use different amounts of internal texture coordinates in accordance with embodiments of the present invention.

Detail Description Paragraph:
[0033] FIG. 5 illustrates texture coordinate data transfer according to an example embodiment of the present invention. Other embodiments and configurations are also within the scope of the present invention. More specifically, FIG. 5 illustrates a memory 260 (such as the system memory 130 of FIG. 3), a graphics device 270 (such as the GMCH 140 of FIG. 3) and software 280 that controls, among other things, the transfer of texture coordinates from the memory 260 to the graphics driver 270. The software 280 may reside in external memory. The memory 260 is shown as including the array 250. For illustration purposes, the array 250 may include texture coordinate data 252 and non-texture coordinate data 254. As show in FIG. 5, the graphics device 270 may include four texture mapping engines, namely a texture mapping engine (TME0) 272, a texture mapping engine (TME1) 274, a texture mapping engine (TME2) 276, and a texture mapping engine (TME3) 278. While this embodiment only illustrates four texture mapping engines within the graphics device 270, other numbers of texture mapping engines are also within the scope of the present invention.

Detail Description Paragraph:
[0034] The graphics device 270 may further include a register 271 associated with the texture mapping engine 272, a register 271 associated with the texture mapping engine 274, a register 275 associated with the texture mapping engine 276 and a register 277 associated with the texture mapping engine 278. Each of the registers 271, 273, 275 and 277 may be used to select the appropriate texture coordinate values to be obtained from the memory 260 (or a default value) for each of the texture mapping engine 272, the texture mapping engine 274, the texture mapping engine 276 and the texture mapping engine 278, respectively. During operation, the software 280 may set values within the respective registers 271, 273, 275 and 277 such that the texture mapping engines 272, 274, 276 and 278 receive the appropriate texture coordinates from the memory 260. In accordance with embodiments of the present invention, the entire array 250 of texture coordinates does not needed to be transferred from the memory 260 to the graphics device 270. That is, embodiments of the present invention route the proper texture coordinates to the appropriate texture mapping engines and avoid transferring unneeded texture coordinates from

the array 250. The software 280 may appropriately pick the texture coordinates to be transferred to the texture mapping engines 272, 274, 276 and 278. This avoids the graphics device 270 from having to reformat the vertex texture buffers after they have been transferred from the memory 260 to the graphics device 270.

Detail Description Paragraph:
[0035] FIGS. 6 and 7 illustrate how embodiments of the present invention may be useful to appropriately route the texture coordinate data from the memory 260 to the graphics device 270. As shown in FIG. 6, the memory 260 (of FIG. 5) may include eight vertex texture coordinates TC0, TC1, TC2, TC3, TC4, TC5, TC6 and TC7. These texture coordinates may be provided within the array 250 or may be provided within vertex texture buffers. The graphics device 270 (of FIG. 5) is represented in FIG. 6 as four internal texture coordinates (ITC0, ITC1, ITC2 and ITC3) that will be provided within the four texture mapping engines 272, 274, 276 and 278, respectively. In accordance with embodiments of the present invention, the four internal texture coordinates (ITC0, ITC1, ITC2 and ITC3) to be provided to the four texture mapping engines 272, 274, 276 and 278 (at the graphics device 270) may be default values 290 (such as 0,0,0) or may be one of the texture coordinates TC0, TC1, TC2, TC3, TC4, TC5, TC6 and TC7 provided within the memory 260. The selection as to which texture coordinates will be provided as the internal texture coordinates ITC0, ITC1, ITC2 and ITC3 (corresponding to the mapping engines 272, 274, 276 and 278) may be based on a signal TexCoordbinding 295. This signal may be provided by the software 280 to appropriately route the appropriate texture coordinates to the texture mapping engines 272, 274, 276 and 278. That is, the software 280 may specify, in this example, that the internal texture coordinates may come from any one of the texture coordinates TC0, TC1, TC2, TC3, TC4, TC5, TC6 and TC7 or from the default value. In other words, the software 280 may select the source of the texture coordinates for each texture mapping engine 272, 274, 276 and 278. The software 280 may make this selection based on the desired image to be created and the desire to avoid unneedlessly transferring data from the memory 260 to the graphics device 270. The apparatus appropriately routes (or transfers) the selected texture coordinates to the proper texture mapping engines 272, 274, 276 and 278 (as the internal texture coordinates ITC0, ITC1, ITC2 and ITC3) by utilizing the registers 271, 273, 275 and 277. Accordingly, the graphics device 270 may only obtain a limited number of texture coordinates from the memory 260 and avoid obtaining the unnecessary texture coordinates for a particular image. This additionally avoids the software 280 from having to reformat the array 250 when it arrives at the graphics device 270 as in disadvantageous arrangements.

Detail Description Paragraph:
[0036] FIG. 6 further shows that the TexCoordBinding state variable may specify the data source for each internal coordinate set. Other ways of setting each internal coordinate set are also within the scope of the present invention.

Detail Description Paragraph:
[0037] In at least one embodiment, each of registers 271, 273, 275 and 277 may separately store a multi-bit value (i.e., four bits) indicating a location as to where to obtain texture coordinates. For example, bit values of 0-7 may represent the texture coordinates 0-7, respectively, and a bit value of 8 may represent a default value.

Detail Description Paragraph:
[0038] FIG. 7 shows an example mapping (or transferring) in accordance with an embodiment of the present invention. Other mappings are also within the scope of the present invention. More specifically, FIG. 7 shows that the texture coordinate TC6 is mapped to the texture mapping engine 272, the texture coordinate TC1 is mapped to both the texture mapping engine 274 and the texture mapping engine 278 and a default value (0, 0) is mapped to the texture mapping engine 276. Stated differently, the internal texture coordinate ITC0 is bound to the texture coordinate TC6, the internal texture coordinate ITC2 receives a default value

(0,0), and the internal texture coordinate ITC1 and the internal texture coordinate ITC3 are both bound to the texture coordinate TC1. This "cloning" of a vertex texture coordinate set (e.g., texture coordinate TC1) is particularly useful when a single vertex texture coordinate set is bound to two different texture mappings, though with different address (wrap) control or texture coordinate transformaton matrices etc. In this example, the texture coordinates TC0,TC2, TC3, TC4, TC5 and TC7 are not used and are effectively ignored by the graphics device (although they are present in the vertex data array).

Detail Description Paragraph:
[0039] Accordingly, by utilizing these logical bindings, specific vertex texture coordinate sets that are present in the vertex data array may be ignored. This may better support the operation of the Direct 3D API, which does not prevent unused texture coordinate sets from being presented to the graphics driver or stored in the vertex buffers. This allows applications to keep one vertex database (with possibly more texture coordinates sets than the hardware can use at any point in time) and then employ a multipass rendering algorithm where a subset of the coordinate sets may be used in each pass.

Detail Description Paragraph:
[0040] The logical binding functionality may allow multiple internal texture coordinate sets to be bound to the same vertex texture coordinate sets. This may be useful for replicating vertex texture coordinate sets in order to apply different attributes (e.g., texture address controls, texture coordinate transforms, etc.) to the same texture coordinate set for use with different texture mappings. This may be useful for matching the Direct 3D API semantics of associating these controls with texture stages versus texture coordinate sets.

Detail Description Paragraph:
[0041] The logical bindings also allow the vertex texture coordinate sets to be used in a random (versus strictly sequential) fashion.

Detail Description Paragraph:
[0042] Embodiments of the present invention provide advantages over graphic devices that support a fixed (i.e., implied) binding between the vertex texture coordinate set and the internal texture coordinate sets. That is, embodiments of the present invention permit vertex texture coordinates to be ignored, permit vertex texture coordinates to be replicated, permit vertex texture coordinates to be used in random order and permit the association of a default value to a texture coordinate set. Without this flexibility, the graphics driver would be generate a second, rearranged copy of the vertex data, which adds additional memory bandwidth requirements and software overhead and thus reduces the system performance.

Detail Description Paragraph:
[0043] By utilizing embodiments of the present invention, an image may be generated by a graphics device by rendering the objects and using the texture coordinates to assign the appropriate texture map contents to the pixels of the objects. The image may be later displayed on a display device.

Detail Description Paragraph:
[0044] Embodiments of the present invention may relate to a computer system that includes a memory device to store a plurality of texture coordinates associated with vertices of three dimensional objects, a graphics device having a plurality of mapping engines each to be used to map at least one of the objects based on a plurality of internal texture coordinates, and a mapping system to transfer select ones of the plurality of texture coordinates in the memory device to the mapping engines without transferring unselected one of the plurality of texture coordinates from the memory device to the mapping engines.

CLAIMS:

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1. A computer system comprising: a memory device to store a plurality of texture coordinates associated with vertices of three dimensional objects; a graphics device to couple to said memory device and to process internal texture coordinates for display; and a mapping system to appropriately route select ones of said plurality of texture coordinates from said memory device to said graphics device.

3. The computer system of claim 1, wherein said graphics device comprises a plurality of mapping engines each to process a separate one of said internal texture coordinates.

5. The computer system of claim 4, wherein a value within each of said registers corresponds to a source of the texture coordinate for said corresponding mapping engine.

6. The computer system of claim 5, wherein said source comprises one of: a default and one of said plurality of said texture coordinates in said memory device.

7. The computer system of claim 4, wherein said mapping system assigns a value into each register to select the appropriate texture coordinate.

8. A computer system comprising: a memory device to store a plurality of texture coordinates associated with vertices of three dimensional objects; a graphics device having a plurality of mapping engines each to map at least one of said objects based on a plurality of internal texture coordinates; and a mapping system to transfer select ones of said plurality of texture coordinates in said memory device to said mapping engines without transferring unselected ones of said plurality of texture coordinates from said memory device to said graphics device.

11. The computer system of claim 10, wherein said mapping system assigns a value to each register so as to select a source of the internal texture coordinates for each of said mapping engines.

12. The computer system of claim 11, wherein said source comprises one of: a default and one of said plurality of said texture coordinates in said memory device.

13. A graphics device for creating an image based on internal texture coordinates received from a memory device, said graphics device including a plurality of mapping engines and a plurality of registers, each register corresponding to a source of texture coordinate values for one of said mapping engines.

15. The graphics device of claim 13, wherein said source comprises one of: a default and one of a plurality of said texture coordinates stored in said memory device.

16. The graphics device of claim 13, wherein a mapping system appropriately selects the texture coordinates for routing to each of the mapping engines.

17. A method comprising: receiving a plurality of texture coordinate values in a memory device, said plurality of texture coordinates being associated with vertices of three dimensional objects; selecting ones of said plurality of texture coordinate values for mapping of at least one of said objects; and transferring said select ones of said plurality of texture coordinates values from said memory device to mapping engines.

18. The method of claim 17, wherein said select ones of said plurality of texture coordinates are transferred from said memory device to said mapping engines without transferring unselected ones of said plurality of texture coordinates.

19. The method of claim 17, wherein said selecting comprises associating a source of texture coordinates for each of said mapping engines.

21. The method of claim 20, wherein said value corresponds to one of: a default value and one of said plurality of texture coordinates values.

22. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform a method comprising: selecting ones of a plurality of texture coordinate values in a memory device, said plurality of texture coordinates values being associated with vertices of three dimensional objects; and transferring said select ones of said plurality of texture coordinates values from said memory device to mapping engines.

23. The program storage device of claim 22, wherein said select ones of said plurality of texture coordinates are transferred from said memory device to said mapping engines without transferring unselected ones of said plurality of texture coordinate values.

24. The program storage device of claim 22, wherein said selecting comprises associating a source of texture coordinates for each of said mapping engines.

8. Document ID: US 20020178153 A1

L11: Entry 8 of 15 File: PGPB Nov 28, 2002

DOCUMENT-IDENTIFIER: US 20020178153 A1
TITLE: Document retrieval assisting method and system for the same and document retrieval service using the same

Detail Description Paragraph:
[0091] FIG. 7 depicts the detail of the search results display area imaging data 34422P1 (FIG. 4) then. The data is composed of display position, area size, origin position and display contents. The display position shows at which position in the overall interface frame the area is attached; the origin position shows the coordinate of the imaging area lying at the upper left corner of the display area. By scrolling, the value can be modified.

Detail Description Paragraph:
[0093] Similarly, FIG. 8 depicts the detail of the topic word display area imaging data 34422P2 (FIG. 4) then. The imaging contents thereof are composed of a line imaging data set representing links of graphs and a character row imaging data set representing the character row of a node. The line is designated with the start point and end point. For example, the first line means that a line should be imaged from coordinate (80, 80) to coordinate (100, 30); and the fifth line means that a character row "topic word-a1" is imaged on a background color=green at coordinate (100, 30). The graph on the topic word display area P2 of FIG. 6 is imaged, on the basis of the imaging contents.

Detail Description Paragraph:
[0106] FIG. 12 is the detail of the information provider side retrieval assisting routine 1431 (FIG. 10). The routine 1431 starts on receipt of the query from a user side. Firstly at branch 14311, keyword search 143111 or associative search 143112 is carried out according to the designation of a retrieval method on the query. If

the query in the example of FIG. 9 is received, the retrieval method is designated as "key word search" and therefore, key word search should be selected. For key word search, retrieval contents storage area 344232 functions as a logical binding of key words, and therefore, an assembly of document numbers containing each key word is obtained with reference to the word/document corresponding data 15D13, to calculate an assembly as the logical binding of them. For associative search, furthermore, a document similar to the document as a key according to the method described in the description of the cluster tree 15D15, should be retrieved. In any case, the search results are expressed as assemblies of sets of document identification numbers and suitability scores for search queries, and they are stored in the decreasing order of suitability score in the search results storage area 1423. The suitability score for key word search can be gained for example from the number of key words contained therein, and for associative search, similarity can be used as the score.

Detail Description Paragraph:
[0107] Subsequently, operations including topic word extraction 14312, between-topic word co-occurrence table preparation 143131, between-topic word linking information preparation 143132, topic word graph mapping coordinate calculation routine 143133, topic word/document corresponding table preparation 143141, and document/topic word corresponding table preparation 143142 are carried out, to send back necessary information for representing search results and topic words to users.

Detail Description Paragraph:
[0109] Because the method described in "Document retrieval-assisting method and system therefor and document retrieval service by using the same" is used for the topic word extraction 14312 and between-topic word co-occurrence table preparation 143131 from search results, between-topic word linking information preparation 143132, and topic word graph mapping coordinate calculation routine 143133, brief description thereof is simply illustrated herein. By the topic word extraction 14312 routine, the number df(X) of documents in a search results containing each (X) of all the words appearing at least one in the search results is counted. With reference to the document/word corresponding table 15D12, this calculation can be performed in a simple manner. With reference to the word frequency data 15D14 (FIG. 11), additionally, document frequency DF(X) indicating in how many documents these words appear in the entire data base, can be recovered. Since the ratio of df(X) to DF(X) represents the extent as to how unusually frequently word X appears in the search results, a word with a larger value thereof is to be extracted as topic word. Because the comparison between a general word with a larger frequency and a highly specific word with a smaller frequency at an identical scale is very difficult, words are divided in some classes on the basis of the document frequency df(X) in the search results, to pick up topic words from each frequency class of at good balance.

Detail Description Paragraph:
[0112] By topic word graph mapping coordinate calculation routine 143133, the coordinate for arranging a topic word two-dimensionally is calculated on the basis of topic word linking information, under the provision that and all topics words are displayed. For brief description of the method of the U.S. patent application Ser. No. 08/888,017, the document frequency df(X) of each topic word in the search results is on the vertical coordinate. (So as to make the parameter region compact, herein, logarithmic representation or inverse tangent function may be used.) On the horizontal coordinate, firstly, nodes with no link address are uniformly arranged within a predetermined range. Thereafter, horizontal coordinates should be sequentially determined, recursively, by a method comprising uniformly arranging the horizontal coordinates of the nodes with the same link address nodes for which the horizontal coordinates are already determined. Because overlaps of nodes may occur according to the method, furthermore, a right node should be shifted, further toward the right side, if any overlap is present, to avoid overlapping.

Detail Description Paragraph:
[0121] Like the case of search results, the selection flag and mark intensity are at initial states of all clear. Graphic display position is represented as a value calculated by a provider side retrieval routine 1431 according to the topic word graph mapping coordinate calculation routine 143133 (FIG. 12). The frequency class is represented as a classification value, depending on the document frequency in the search results of topic words in the topic word extraction routine 14312 (FIG. 12). Class 1 represents a relatively high frequency; Class 2 represents a moderate frequency; and Class 3 represents a relatively low frequency.

Detail Description Paragraph:
[0127] FIG. 18 depicts the detail of the parameter 344211 to be used for search results imaging data preparation. There are parameters such as line interval (.DELTA.y), mark display position (x1), mark shift width (.DELTA.x1), bit map mark identifier (Bm), selection window display horizontal coordinate (x2), selection window size (h, v), window display color (CS0) for unselect, window display color for select (CS1), horizontal coordinate of score display position right end (x3), horizontal coordinate of title display position left end (x4), background color (CD) of title display area of document display, title display font (F), and the like. The character rows shown in ( ) are for reference in the description of the routine for generating display data of the search result 3443.

Detail Description Paragraph:
[0128] FIGS. 19A through 19C depict the detail of routine for generating display data of the search result 3443, which is used for the search results imaging data update routine 34412 of the retrieval assisting routine 3441 (FIG. 5). At initial presetting 34431, firstly, variable "i" representing display order and variable "y" representing the vertical coordinate value of the display position should be preset at 0. At loop 34432, the following process should be repeated at the number of documents as search results. Firstly at the process 34433, the value of variable "i" and the value of variable "y" should be incremented by 1 and .DELTA. y, respectively. .DELTA.y is a value preset as a line interval value for displaying search results in the parameter 344211 (FIG. 18). (The numerical figure of the vertical coordinate of the display position increases from top to down.) Additionally, the temporary number of a document displayed on the sequential order "i" is substituted with the variable "n". With reference to the search results display order storage area 34424b (FIG. 13B), the value is determined by picking up a number corresponding to the display order i. In the following description, furthermore, "document with a temporary document number n", if described accurately, should be abbreviated as "document n", if no specific concern of the occurrence of any mistake exists.

Detail Description Paragraph:
[0129] Subsequently, mark imaging data preparation routine 34434, selection window imaging data preparation routine 34435, score imaging data preparation routine 34436, and imaging data preparation routine of title, etc., 34437 are performed. The former two are described in detail in FIGS. 19B and 19C, respectively. At the score imaging data preparation routine 34436, an imaging data of "position (x3, y), diagram type=character row, attaching position=lower right, character row=(decimal expression of the score of document n)" is added to the search results imaging data 34422P1 (FIG. 7). Herein, x3 is preset as the horizontal coordinate of the right end of the score display position in the search results imaging data preparing parameter 344211 (FIG. 18).

Detail Description Paragraph:
[0130] Finally at the imaging data preparation routine of title, etc. 34437, temporal variable col is set to the background color CD (FIG. 18) of the title display area during the display of the document if the document is displayed, and otherwise, col is set to transparent. Whether or not the document is on display is

determined, depending on whether or not the identification number of the document (indicated in the document number column of the search results storage area 34424a) is equal to the value of the variable MD to be used in the retrieval assisting routine 3441 (FIG. 5). Continuously, an imaging data of "position (x4, y), diagram type=character row, attaching position=lower left, background color=col, character row="(title of document n)" is added to the search results imaging data 34422P1. Herein, x4 is a value, parametrically preset as the horizontal coordinate of the left end of the title display position (FIG. 18). The score of the document n and the title of the document n can be picked up from the corresponding column of the search results storage area 34424a.

Detail Description Paragraph:
[0131] FIG. 19B is the detail of the mark imaging data preparation routine 34434. By the operation, a process of adding an imaging data to display a mark symbol (check mark, etc.) parameter preset in the variable Bm (FIG. 18) as a bit map identifier for marking, to the search results imaging data 34422P1 (FIG. 7) is repeated at a number of times corresponding to the mark intensity of the document n (recovered from the search results storage area 34424a). For display on the horizontal coordinate (X), the parameter preset value x1 as mark display position is substituted by initial presetting 344341, and after shifting, mark is shifted each time by a shift corresponding to the similarly preset value .DELTA.x1 as mark shift pitch (FIG. 18) for display. Therefore, a check mark with a broadness in proportion to the mark intensity is drawn.

Detail Description Paragraph:
[0132] FIG. 19C depicts the detail of the selection window imaging data preparation routine 34435. At conditional branch 344351, firstly, it is determined whether or not the document n is selected (as indicated by the selection flag in the search results storage area 34424a) and if selected, the window display color (col) is defined as a color (unambiguous color such as red) and otherwise, the color is defined as an ambiguous color (transparency, etc.). Continuously at conditional branch 344352, if it is judged whether the document pushed just immediately beforehand with mouse is in the line MS from top and the position currently designated with mouse is in the line MP from top and that the mouse is in the course of document selection (MM=11), is "n" present in between the position pushed with mouse and the position currently designated, as shown by the formula MS.ltoreq.n.ltoreq.MP or MP.ltoreq.n.ltoreq.MS. if yes, then it is judged whether the article of the position user mouse button was pushed is preliminarily selected or not. If selected, non-selection color CS0 is substituted with the variable col, and the selection color CS1 is substituted with the variable col, if not selected. By further using the designated value X2 as the horizontal coordinate of selection window and (h, v) as the size of the selection window, an imaging data of "position (x2, y), diagram type=rectangle, size (h, v), color=col" should added to the search results imaging data 34422P1. Thereby, the selection window is colored with the selection color (CS1) of the document at selected state or a document currently under dragging to be put at selection state; otherwise, the document is colored with non selection color (CS2).

Detail Description Paragraph:
[0160] The generation of imaging data is done by the routine for generating display data of topic word graph 3444 (FIG. 21A). Firstly, in case of topic word move mode (MM=21), mode determination is done at branch 34441, to record mouse move distance on the variable .DELTA.M. Imaging position of topic word nodes for preparing an imaging data of topic words selected are based on the coordinate written in the topic word storage area 34425 (FIG. 14), but the mouse move from the pushed point should be added to the imaging position for a selected topic word at the process 34445. More specifically, the imaging position shifts by the mouse move. Because .DELTA.M is added to the coordinate when topic words corresponding to the link start or end points are selected even in the linking imaging data preparation routine 34446 (FIG. 21B), and furthermore, links are also transferable together

with the transfer of topic words, and are then to be displayed.

Detail Description Paragraph:
[0170] At the mode during the move of topic word (MM=21), left mouse is pushed on a topic word node when mouse is pushed just immediately beforehand, so that the topic word falls into selection state immediately after such pushing. When mouse is released in this case, the process 3441MR-P2-1 is executed, to modify the display position coordinate of all topic words at selected state in the topic word storage area 34425, by the difference between the position currently designated with mouse and the position pushed just immediately beforehand. During move since mouse pushing, the same process is executed for calculating the coordinate of an imaging data at the routine for generating display data of topic word graph 3444, but the display position in the topic word storage area 34425 of itself is not modified. Mouse release means the settlement of the move partner of the topic word, so that the coordinate position of the topic word storage area 34425 is rewritten.

CLAIMS:

2. A document retrieval method according to claim 1, wherein the search queries are given by key words cleaved out from input word sequence, phrases or sentences or using logical binding of the key words, and wherein the document retrieval method is capable of achieving associative search by using, as keys, documents given by user, including the case where the document are selected from the retrieved documents.

☐ 9. Document ID: US 20020042792 A1

L11: Entry 9 of 15 File: PGPB Apr 11, 2002

DOCUMENT-IDENTIFIER: US 20020042792 A1
TITLE: Document retrieval assisting method and system for the same and document retrieval service using the same

Detail Description Paragraph:
[0090] FIG. 7 depicts the detail of the search results display area imaging data 34422P1 (FIG. 4) then. The data is composed of display position, area size, origin position and display contents. The display position shows at which position in the overall interface frame the area is attached; the origin position shows the coordinate of the imaging area lying at the upper left corner of the display area. By scrolling, the value can be modified.

Detail Description Paragraph:
[0092] Similarly, FIG. 8 depicts the detail of the topic word display area imaging data 34422P2 (FIG. 4) then. The imaging contents thereof are composed of a line imaging data set representing links of graphs and a character row imaging data set representing the character row of a node. The line is designated with the start point and end point. For example, the first line means that a line should be imaged from coordinate (80, 80) to coordinate (100, 30); and the fifth line means that a character row "topic word-a1" is imaged on a background color =green at coordinate (100, 30). The graph on the topic word display area P2 of FIG. 6 is imaged, on the basis of the imaging contents.

h e b b g e e e f e e f fc ef b e

Detail Description Paragraph:
[0105] FIG. 12 is the detail of the information provider side retrieval assisting routine 1431 (FIG. 10). The routine 1431 starts on receipt of the query from a user side. Firstly at branch 14311, keyword search 143111 or associative search 143112 is carried out according to the designation of a retrieval method on the query. If the query in the example of FIG. 9 is received, the retrieval method is designated as "key word search" and therefore, key word search should be selected. For key word search, retrieval contents storage area 344232 functions as a logical binding of key words, and therefore, an assembly of document numbers containing each key word is obtained with reference to the word/document corresponding data 15D13, to calculate an assembly as the logical binding of them. For associative search, furthermore, a document similar to the document as a key according to the method described in the description of the cluster tree 15D15, should be retrieved. In any case, the search results are expressed as assemblies of sets of document identification numbers and suitability scores for search queries, and they are stored in the decreasing order of suitability score in the search results storage area 1423. The suitability score for key word search can be gained for example from the number of key words contained therein, and for associative search, similarity can be used as the score.

Detail Description Paragraph:
[0106] Subsequently, operations including topic word extraction 14312, between-topic word co-occurrence table preparation 143131, between-topic word linking information preparation 143132, topic word graph mapping coordinate calculation routine 143133, topic word/document corresponding table preparation 143141, and document/topic word corresponding table preparation 143142 are carried out, to send back necessary information for representing search results and topic words to users.

Detail Description Paragraph:
[0108] Because the method described in "Document retrieval-assisting method and system therefor and document retrieval service by using the same" is used for the topic word extraction 14312 and between-topic word co-occurrence table preparation 143131 from search results, between-topic word linking information preparation 143132, and topic word graph mapping coordinate calculation routine 143133, brief description thereof is simply illustrated herein. By the topic word extraction 14312 routine, the number df(X) of documents in a search results containing each (X) of all the words appearing at least one in the search results is counted. With reference to the document/word corresponding table 15D12, this calculation can be performed in a simple manner. With reference to the word frequency data 15D14 (FIG. 11), additionally, document frequency DF(X) indicating in how many documents these words appear in the entire data base, can be recovered. Since the ratio of df(X) to DF(X) represents the extent as to how unusually frequently word X appears in the search results, a word with a larger value thereof is to be extracted as topic word. Because the comparison between a general word with a larger frequency and a highly specific word with a smaller frequency at an identical scale is very difficult, words are divided in some classes on the basis of the document frequency df(X) in the search results, to pick up topic words from each frequency class of at good balance.

Detail Description Paragraph:
[0111] By topic word graph mapping coordinate calculation routine 143133, the coordinate for arranging a topic word two-dimensionally is calculated on the basis of topic word linking information, under the provision that and all topics words are displayed. For brief description of the method of the U.S. patent application Ser. No. 08/888,017, the document frequency df(X) of each topic word in the search results is on the vertical coordinate. (So as to make the parameter region compact, herein, logarithmic representation or inverse tangent function may be used.) On the horizontal coordinate, firstly, nodes with no link address are uniformly arranged

within a predetermined range. Thereafter, horizontal coordinates should be sequentially determined, recursively, by a method comprising uniformly arranging the horizontal coordinates of the nodes with the same link address nodes for which the horizontal coordinates are already determined. Because overlaps of nodes may occur according to the method, furthermore, a right node should be shifted, further toward the right side, if any overlap is present, to avoid overlapping.

Detail Description Paragraph:
[0120] Like the case of search results, the selection flag and mark intensity are at initial states of all clear. Graphic display position is represented as a value calculated by a provider side retrieval routine 1431 according to the topic word graph mapping coordinate calculation routine 143133 (FIG. 12). The frequency class is represented as a classification value, depending on the document frequency in the search results of topic words in the topic word extraction routine 14312 (FIG. 12). Class 1 represents a relatively high frequency; Class 2 represents a moderate frequency; and Class 3 represents a relatively low frequency.

Detail Description Paragraph:
[0126] FIG. 18 depicts the detail of the parameter 344211 to be used for search results imaging data preparation. There are parameters such as line interval (.DELTA.y), mark display position (x1), mark shift width (.DELTA.x1), bit map mark identifier (Bm), selection window display horizontal coordinate (x2), selection window size (h, v), window display color (CS0) for unselect, window display color for select (CS1), horizontal coordinate of score display position right end (x3), horizontal coordinate of title display position left end (x4), background color (CD) of title display area of document display, title display font (F), and the like. The character rows shown in ( ) are for reference in the description of the routine for generating display data of the search result 3443.

Detail Description Paragraph:
[0127] FIGS. 19A through 19C depict the detail of routine for generating display data of the search result 3443, which is used for the search results imaging data update routine 34412 of the retrieval assisting routine 3441 (FIG. 5). At initial presetting 34431, firstly, variable "i" representing display order and variable "y" representing the vertical coordinate value of the display position should be preset at 0. At loop 34432, the following process should be repeated at the number of documents as search results. Firstly at the process 34433, the value of variable "i" and the value of variable "y" should be incremented by 1 and .DELTA. y, respectively. .DELTA.y is a value preset as a line interval value for displaying search results in the parameter 344211 (FIG. 18). (The numerical figure of the vertical coordinate of the display position increases from top to down.) Additionally, the temporary number of a document displayed on the sequential order "i" is substituted with the variable "n". With reference to the search results display order storage area 34424b (FIG. 13B), the value is determined by picking up a number corresponding to the display order i. In the following description, furthermore, "document with a temporary document number n", if described accurately, should be abbreviated as "document n", if no specific concern of the occurrence of any mistake exists.

Detail Description Paragraph:
[0128] Subsequently, mark imaging data preparation routine 34434, selection window imaging data preparation routine 34435, score imaging data preparation routine 34436, and imaging data preparation routine of title, etc., 34437 are performed. The former two are described in detail in FIG. 19B and 19C, respectively. At the score imaging data preparation routine 34436, an imaging data of "position (x3, y), diagram type=character row, attaching position=lower right, character row=(decimal expression of the score of document n)" is added to the search results imaging data 34422P1 (FIG. 7). Herein, x3 is preset as the horizontal coordinate of the right end of the score display position in the search results imaging data preparing parameter 344211 (FIG. 18).

Detail Description Paragraph:
[0129] Finally at the imaging data preparation routine of title, etc. 34437, temporal variable col is set to the background color CD (FIG. 18) of the title display area during the display of the document if the document is displayed, and otherwise, col is set to transparent. Whether or not the document is on display is determined, depending on whether or not the identification number of the document (indicated in the document number column of the search results storage area 34424a) is equal to the value of the variable MD to be used in the retrieval assisting routine 3441 (FIG. 5). Continuously, an imaging data of "position (x4, y), diagram type=character row, attaching position=lower left, background color=Col, character row "(title of document n)" is added to the search results imaging data 34422P1. Herein, x4 is a value, parametrically preset as the horizontal coordinate of the left end of the title display position (FIG. 18). The score of the document n and the title of the document n can be picked up from the corresponding column of the search results storage area 34424a.

Detail Description Paragraph:
[0130] FIG. 19B is the detail of the mark imaging data preparation routine 34434. By the operation, a process of adding an imaging data to display a mark symbol (check mark, etc.) parameter preset in the variable Bm (FIG. 18) as a bit map identifier for marking, to the search results imaging data 34422P1 (FIG. 7) is repeated at a number of times corresponding to the mark intensity of the document n (recovered from the search results storage area 34424a). For display on the horizontal coordinate (X), the parameter preset value x1 as mark display position is substituted by initial presetting 344341, and after shifting, mark is shifted each time by a shift corresponding to the similarly preset value .DELTA.x1 as mark shift pitch (FIG. 18) for display. Therefore, a check mark with a broadness in proportion to the mark intensity is drawn.

Detail Description Paragraph:
[0131] FIG. 19C depicts the detail of the selection window imaging data preparation routine 34435. At conditional branch 344351, firstly, it is determined whether or not the document n is selected (as indicated by the selection flag in the search results storage area 34424a) and if selected, the window display color (col) is defined as a color (unambiguous color such as red) and otherwise, the color is defined as an ambiguous color (transparency, etc.). Continuously at conditional branch 344352, if it is judged whether the document pushed just immediately beforehand with mouse is in the line MS from top and the position currently designated with mouse is in the line MP from top and that the mouse is in the course of document selection (MM=11), is "n" present in between the position pushed with mouse and the position currently designated, as shown by the formula MS.ltoreq.n.ltoreq.MP or MP.ltoreq.n.ltoreq.MS. if yes, then it is judged whether the article of the position user mouse button was pushed is preliminarily selected or not. If selected, non-selection color CSO is substituted with the variable col, and the selection color CS1 is substituted with the variable col, if not selected. By further using the designated value X2 as the horizontal coordinate of selection window and (h, v) as the size of the selection window, an imaging data of "position (x2, y), diagram type=rectangle, size (h, v), color=col" should added to the search results imaging data 34422P1. Thereby, the selection window is colored with the selection color (CS1) of the document at selected state or a document currently under dragging to be put at selection state; otherwise, the document is colored with non selection color (CS2).

Detail Description Paragraph:
[0159] The generation of imaging data is done by the routine for generating display data of topic word graph 3444 (FIG. 21A). Firstly, in case of topic word move mode (MM=21), mode determination is done at branch 34441, to record mouse move distance on the variable .DELTA.M. Imaging position of topic word nodes for preparing an imaging data of topic words selected are based on the coordinate written in the

topic word storage area 34425 (FIG. 14), but the mouse move from the pushed point should be added to the imaging position for a selected topic word at the process 34445. More specifically, the imaging position shifts by the mouse move. Because .DELTA.M is added to the coordinate when topic words corresponding to the link start or end points are selected even in the linking imaging data preparation routine 34446 (FIG. 21B), and furthermore, links are also transferable together with the transfer of topic words, and are then to be displayed.

Detail Description Paragraph:
[0169] At the mode during the move of topic word (MM=21), left mouse is pushed on a topic word node when mouse is pushed just immediately beforehand, so that the topic word falls into selection state immediately after such pushing. When mouse is released in this case, the process 3441MR-P2-1 is executed, to modify the display position coordinate of all topic words at selected state in the topic word storage area 34425, by the difference between the position currently designated with mouse and the position pushed just immediately beforehand. During move since mouse pushing, the same process is executed for calculating the coordinate of an imaging data at the routine for generating display data of topic word graph 3444, but the display position in the topic word storage area 34425 of itself is not modified. Mouse release means the settlement of the move partner of the topic word, so that the coordinate position of the topic word storage area 34425 is rewritten.

CLAIMS:

2. A document retrieval method according to claim 1, wherein the search queries are given by key words cleaved out from input word sequence, phrases or sentences or using logical binding of the key words, and wherein the document retrieval method is capable of achieving associative search by using, as keys, documents given by user, including the case where the document are selected from the retrieved documents.

10. Document ID: US 20020023032 A1

L11: Entry 10 of 15 File: PGPB Feb 21, 2002

DOCUMENT-IDENTIFIER: US 20020023032 A1
TITLE: Trusted system

Detail Description Paragraph:
[0034] It is highly desirable for the BIOS boot block to be contained within the trusted device 24. This prevents subversion of the obtaining of the integrity metric (IM) (which could otherwise occur if rogue software processes are present) and prevents rogue software processes creating a situation in which the BIOS (even if correct) fails to build the proper environment for the operating system. Although, in the preferred embodiment to be described, the trusted device 24 is a single, discrete component, it is envisaged that the functions of the trusted device 24 may alternatively be split into multiple devices on the motherboard, or even integrated into one or more of the existing standard devices of the platform. For example, it is feasible to integrate one or more of the functions of the trusted device into the main processor itself, provided that the functions and their communications cannot be subverted. This, however, would probably require

separate leads on the processor for sole use by the trusted functions. Additionally or alternatively, although in the present embodiment the trusted device is a hardware device that is adapted for integration into the motherboard 20, it is anticipated that a trusted device may be implemented as a `removable` device, such as a dongle, which could be attached to a platform when required. Whether the trusted device is integrated or removable is a matter of design choice. However, where the trusted device is separable, a mechanism for providing a logical binding between the trusted device and the platform should be present. Additionally, trusted device 24 handles all standard display functions plus a number of further tasks, which will be described in detail below. `Standard display functions` are those functions that one would normally expect to find in any standard platform 10, for example a PC operating under the Windows NT.TM. operating system, for displaying an image associated with the operating system or application software.

Detail Description Paragraph:
[0036] Specifically, the trusted device comprises: a controller 30 programmed to control the overall operation of the trusted device 24, and interact with the other functions on the trusted device 24 and with the other devices on the motherboard 20; a measurement function 31 for acquiring the integrity metric from the platform 10; a cryptographic function 32 for signing, encrypting or decrypting specified data; an authentication function 33 for authenticating a smart card; and interface circuitry 34 having appropriate ports (36, 37 & 38) for connecting the trusted device 24 respectively to the data bus 26, control lines 27 and address lines 28 of the motherboard 20 for receiving, inter alia, signals from the trusted switch 11 and image data (i.e. graphics primitives) from the processor 21 and also trusted image data from the smartcard 19, as will be described. Additionally, the trusted device 24 includes frame buffer memory 35, which comprises sufficient VRAM (video RAM) in which to store at least one full image frame (a typical frame buffer memory 315 is 1-2 Mbytes in size, for screen resolutions of 1280.times.768 supporting up to 16.7 million colours); and a video DAC (digital to analogue converter) 39 for converting pixmap data into analogue signals for driving the (analogue) VDU 18.

Detail Description Paragraph:
[0039] A typical process by which graphics primitives are generated by a platform 10 will now be described by way of background. Initially, an application program, which wishes to display a particular image, makes an appropriate call, via a graphical API (application programming interface), to the operating system. An API typically provides a standard interface for an application program to access specific underlying display functions, such as provided by Windows NT.TM., for the purposes of displaying an image. The API call causes the operating system to make respective graphics driver library routine calls, which result in the generation of graphics primitives specific to a display processor, which in this case is the trusted device 24. These graphics primitives are finally passed by the processor 21 to the trusted device 24. Example graphics primitives might be `draw a line from point x to point y with thickness z` or `fill an area bounded by points w, x, y and z with a colour a`.

Detail Description Paragraph:
[0040] The control program of the controller 30 controls the controller to provide the standard display functions to process the received graphics primitives, specifically:

Detail Description Paragraph:
[0041] receiving from the processor 21 and processing graphics primitives to form pixmap data which is directly representative of an image to be displayed on the VDU 18 screen, where the pixmap data generally includes intensity values for each of the red, green and blue dots of each addressable pixel on the VDU 18 screen;

Detail Description Paragraph:
[0056] Other integrity checks could involve establishing that various other

devices, components or apparatus attached to the platform are present and in correct working order. In one example, the BIOS programs associated with a SCSI controller could be verified to ensure communications with peripheral equipment could be trusted. In another example, the integrity of other devices, for example memory devices or co-processors, on the platform could be verified by enacting fixed challenge/response interactions to ensure consistent results. Where the trusted device 24 is a separable component, some such form of interaction is desirable to provide an appropriate logical binding between the trusted device 14 and the platform. Also, although in the present embodiment the trusted device 24 utilises the data bus as its main means of communication with other parts of the platform, it would be feasible, although not so convenient, to provide alternative communications paths, such as hard-wired paths or optical paths. Further, although in the present embodiment the trusted device 24 instructs the main processor 21 to calculate the integrity metric in other embodiments, the trusted device itself is arranged to measure one or more integrity metrics.

Detail Description Paragraph:
[0060] Seal images can consume relatively large amounts of memory if stored as pixmaps. This may be a distinct disadvantage in circumstances where the image needs to be stored on a smartcard 19, where memory capacity is relatively limited. The memory requirement may be reduced by a number of different techniques. For example, the seal image could comprise: a compressed image, which can be decompressed by the trusted device 24; a thumb-nail image that forms the primitive element of a repeating mosaic generated by the trusted device 24; a naturally compressed image, such as a set of alphanumeric characters, which can be displayed by the trusted device 24 as a single large image, or used as a thumb-nail image as above. In any of these alternatives, the seal data itself may be in encrypted form and require the trusted device 24 to decrypt the data before it can be displayed. Alternatively, the seal data may be an encrypted index, which identifies one of a number of possible images stored by the platform 10 or a network server. In this case, the index would be fetched by the trusted device 24 across a secure channel and decrypted in order to retrieve and display the correct image. Further, the seal data could comprise instructions (for example PostScript.TM. instructions) that could be interpreted by an appropriately programmed trusted device 24 to generate an image.

Detail Description Paragraph:
[0061] In accordance with FIG. 6, the platform 10 includes functions provided by the trusted device 24. These functions are: a control process 62 for co-ordinating all the operations of the trusted device 24 and for receiving graphics primitives from a graphics primitives process (not shown) and from an application process 60; a seal process 63 for retrieving seal data 64 from the smartcard 19; a smartcard process 65 for interacting with the smartcard 19 in order to enact challenge/response; and a trusted switch process 68 for monitoring whether the trusted switch 11 has been activated by the user. The smartcard process 65 has access to the trusted device's 24 identity data I.sub.DP, private key S.sub.DP data and certificate Cert.sub.DP data 530. In practice, the smart card and the trusted device interact with one another via standard operating system calls.

11. Document ID: US 6654738 B2

L11: Entry 11 of 15 File: USPT Nov 25, 2003

DOCUMENT-IDENTIFIER: US 6654738 B2

h e b b g e e e f e e f fc ef b e

TITLE: Computer program embodied on a computer-readable medium for a document retrieval service that retrieves documents with a retrieval service agent computer

Detailed Description Text (22):
FIG. 7 depicts the detail of the search results display area imaging data 34422P1 (FIG. 4) then. The data is composed of display position, area size, origin position and display contents. The display position shows at which position in the overall interface frame the area is attached; the origin position shows the coordinate of the imaging area lying at the upper left corner of the display area. By scrolling, the value can be modified.

Detailed Description Text (24):
Similarly, FIG. 8 depicts the detail of the topic word display area imaging data 34422P2 (FIG. 4) then. The imaging contents thereof are composed of a line imaging data set representing links of graphs and a character row imaging data set representing the character row of a node. The line is designated with the start point and end point. For example, the first line means that a line should be imaged from coordinate (80, 80) to coordinate (100, 30); and the fifth line means that a character row "topic word-a1" is imaged on a background color =green at coordinate (100, 30). The graph on the topic word display area P2 of FIG. 6 is imaged, on the basis of the imaging contents.

Detailed Description Text (37):
FIG. 12 is the detail of the information provider side retrieval assisting routine 1431 (FIG. 10). The routine 1431 starts on receipt of the query from a user side. Firstly at branch 14311, keyword search 143111 or associative search 143112 is carried out according to the designation of a retrieval method on the query. If the query in the example of FIG. 9 is received, the retrieval method is designated as "key word search" and therefore, key word search should be selected. For key word search, retrieval contents storage area 344232 functions as a logical binding of key words, and therefore, an assembly of document numbers containing each key word is obtained with reference to the word/document corresponding data 15D13, to calculate an assembly as the logical binding of them. For associative search, furthermore, a document similar to the document as a key according to the method described in the description of the cluster tree 15D15, should be retrieved. In any case, the search results are expressed as assemblies of sets of document identification numbers and suitability scores for search queries, and they are stored in the decreasing order of suitability score in the search results storage area 1423. The suitability score for key word search can be gained for example from the number of key words contained therein, and for associative search, similarity can be used as the score.

Detailed Description Text (38):
Subsequently, operations including topic word extraction 14312, between-topic word co-occurrence table preparation 143131, between-topic word linking information preparation 143132, topic word graph mapping coordinate calculation routine 143133, topic word/document corresponding table preparation 143141, and document/topic word corresponding table preparation 143142 are carried out, to send back necessary information for representing search results and topic words to users.

Detailed Description Text (40):
Because the method described in "Document retrieval-assisting method and system therefor and document retrieval service by using the same" is used for the topic word extraction 14312 and between-topic word co-occurrence table preparation 143131 from search results, between-topic word linking information preparation 143132, and topic word graph mapping coordinate calculation routine 143133, brief description thereof is simply illustrated herein. By the topic word extraction 14312 routine, the number df(X) of documents in a search results containing each (X) of all the words appearing at least one in the search results is counted. With reference to

the document/word corresponding table 15D12, this calculation can be performed in a simple manner. With reference to the word frequency data 15D14 (FIG. 11), additionally, document frequency DF(X) indicating in how many documents these words appear in the entire data base, can be recovered. Since the ratio of df(X) to DF(X) represents the extent as to how unusually frequently word X appears in the search results, a word with a larger value thereof is to be extracted as topic word. Because the comparison between a general word with a larger frequency and a highly specific word with a smaller frequency at an identical scale is very difficult, words are divided in some classes on the basis of the document frequency df(X) in the search results, to pick up topic words from each frequency class of at good balance.

Detailed Description Text (43):
By topic word graph mapping coordinate calculation routine 143133, the coordinate for arranging a topic word two-dimensionally is calculated on the basis of topic word linking information, under the provision that and all topics words are displayed. For brief description of the method of the U.S. patent application Ser. No. 08/888,017, the document frequency df(X) of each topic word in the search results is on the vertical coordinate. (So as to make the parameter region compact, herein, logarithmic representation or inverse tangent function may be used.) On the horizontal coordinate, firstly, nodes with no link address are uniformly arranged within a predetermined range. Thereafter, horizontal coordinates should be sequentially determined, recursively, by a method comprising uniformly arranging the horizontal coordinates of the nodes with the same link address nodes for which the horizontal coordinates are already determined. Because overlaps of nodes may occur according to the method, furthermore, a right node should be shifted, further toward the right side, if any overlap is present, to avoid overlapping.

Detailed Description Text (52):
Like the case of search results, the selection flag and mark intensity are at initial states of all clear. Graphic display position is represented as a value calculated by a provider side retrieval routine 1431 according to the topic word graph mapping coordinate calculation routine 143133 (FIG. 12). The frequency class is represented as a classification value, depending on the document frequency in the search results of topic words in the topic word extraction routine 14312 (FIG. 12). Class 1 represents a relatively high frequency; Class 2 represents a moderate frequency; and Class 3 represents a relatively low frequency.

Detailed Description Text (58):
FIG. 18 depicts the detail of the parameter 344211 to be used for search results imaging data preparation. There are parameters such as line interval (.DELTA.y), mark display position (x1), mark shift width (.DELTA.x1), bit map mark identifier (Bm), selection window display horizontal coordinate (x2), selection window size (h, v), window display color (CS0) for unselect, window display color for select (CS1), horizontal coordinate of score display position right end (x3), horizontal coordinate of title display position left end (x4), background color (CD) of title display area of document display, title display font (F), and the like. The character rows shown in ( ) are for reference in the description of the routine for generating display data of the search result 3443.

Detailed Description Text (59):
FIGS. 19A through 19C depict the detail of routine for generating display data of the search result 3443, which is used for the search results imaging data update routine 34412 of the retrieval assisting routine 3441 (FIG. 5). At initial presetting 34431, firstly, variable "i" representing display order and variable "y" representing the vertical coordinate value of the display position should be preset at 0. At loop 34432, the following process should be repeated at the number of documents as search results. Firstly at the process 34433, the value of variable "i" and the value of variable "y" should be incremented by 1 and .DELTA. y, respectively. .DELTA.y is a value preset as a line interval value for displaying

search results in the parameter 344211 (FIG. 18). (The numerical figure of the vertical coordinate of the display position increases from top to down.) Additionally, the temporary number of a document displayed on the sequential order "i" is substituted with the variable "n". With reference to the search results display order storage area 34424b (FIG. 13B), the value is determined by picking up a number corresponding to the display order i. In the following description, furthermore, "document with a temporary document number n", if described accurately, should be abbreviated as "document n", if no specific concern of the occurrence of any mistake exists.

Detailed Description Text (60):
Subsequently, mark imaging data preparation routine 34434, selection window imaging data preparation routine 34435, score imaging data preparation routine 34436, and imaging data preparation routine of title, etc., 34437 are performed. The former two are described in detail in FIG. 19B and 19C, respectively. At the score imaging data preparation routine 34436, an imaging data of "position (x3, y), diagram type=character row, attaching position=lower right, character row=(decimal expression of the score of document n)" is added to the search results imaging data 34422P1 (FIG. 7). Herein, x3 is preset as the horizontal coordinate of the right end of the score display position in the search results imaging data preparing parameter 344211 (FIG. 18).

Detailed Description Text (61):
Finally at the imaging data preparation routine of title, etc. 34437, temporal variable col is set to the background color CD (FIG. 18) of the title display area during the display of the document if the document is displayed, and otherwise, col is set to transparent. Whether or not the document is on display is determined, depending on whether or not the identification number of the document (indicated in the document number column of the search results storage area 34424a) is equal to the value of the variable MD to be used in the retrieval assisting routine 3441 (FIG. 5). Continuously, an imaging data of "position (x4, y), diagram type=character row, attaching position=lower left, background color=Col, character row "(title of document n)" is added to the search results imaging data 34422P1. Herein, x4 is a value, parametrically preset as the horizontal coordinate of the left end of the title display position (FIG. 18). The score of the document n and the title of the document n can be picked up from the corresponding column of the search results storage area 34424a.

Detailed Description Text (62):
FIG. 19B is the detail of the mark imaging data preparation routine 34434. By the operation, a process of adding an imaging data to display a mark symbol (check mark, etc.) parameter preset in the variable Bm (FIG. 18) as a bit map identifier for marking, to the search results imaging data 34422P1 (FIG. 7) is repeated at a number of times corresponding to the mark intensity of the document n (recovered from the search results storage area 34424a). For display on the horizontal coordinate (X), the parameter preset value x1 as mark display position is substituted by initial presetting 344341, and after shifting, mark is shifted each time by a shift corresponding to the similarly preset value .DELTA.x1 as mark shift pitch (FIG. 18) for display. Therefore, a check mark with a broadness in proportion to the mark intensity is drawn.

Detailed Description Text (63):
FIG. 19C depicts the detail of the selection window imaging data preparation routine 34435. At conditional branch 344351, firstly, it is determined whether or not the document n is selected (as indicated by the selection flag in the search results storage area 34424a) and if selected, the window display color (col) is defined as a color (unambiguous color such as red) and otherwise, the color is defined as an ambiguous color (transparency, etc.). Continuously at conditional branch 344352, if it is judged whether the document pushed just immediately beforehand with mouse is in the line MS from top and the position currently

designated with mouse is in the line MP from top and that the mouse is in the course of document selection (MM=11), is "n" present in between the position pushed with mouse and the position currently designated, as shown by the formula MS.ltoreq.n.ltoreq.MP or MP.ltoreq.n.ltoreq.MS. if yes, then it is judged whether the article of the position user mouse button was pushed is preliminarily selected or not. If selected, non-selection color CSO is substituted with the variable col, and the selection color CS1 is substituted with the variable col, if not selected. By further using the designated value X2 as the horizontal coordinate of selection window and (h, v) as the size of the selection window, an imaging data of "position (x2, y), diagram type=rectangle, size (h, v), color=col" should added to the search results imaging data 34422P1. Thereby, the selection window is colored with the selection color (CS1) of the document at selected state or a document currently under dragging to be put at selection state; otherwise, the document is colored with non selection color (CS2).

Detailed Description Text (91):
The generation of imaging data is done by the routine for generating display data of topic word graph 3444 (FIG. 21A). Firstly, in case of topic word move mode (MM=21), mode determination is done at branch 34441, to record mouse move distance on the variable .DELTA.M. Imaging position of topic word nodes for preparing an imaging data of topic words selected are based on the coordinate written in the topic word storage area 34425 (FIG. 14), but the mouse move from the pushed point should be added to the imaging position for a selected topic word at the process 34445. More specifically, the imaging position shifts by the mouse move. Because .DELTA.M is added to the coordinate when topic words corresponding to the link start or end points are selected even in the linking imaging data preparation routine 34446 (FIG. 21B), and furthermore, links are also transferable together with the transfer of topic words, and are then to be displayed.

Detailed Description Text (101):
At the mode during the move of topic word (MM=21), left mouse is pushed on a topic word node when mouse is pushed just immediately beforehand, so that the topic word falls into selection state immediately after such pushing. When mouse is released in this case, the process 3441MR-P2-1 is executed, to modify the display position coordinate of all topic words at selected state in the topic word storage area 34425, by the difference between the position currently designated with mouse and the position pushed just immediately beforehand. During move since mouse pushing, the same process is executed for calculating the coordinate of an imaging data at the routine for generating display data of topic word graph 3444, but the display position in the topic word storage area 34425 of itself is not modified. Mouse release means the settlement of the move partner of the topic word, so that the coordinate position of the topic word storage area 34425 is rewritten.

12. Document ID: US 6457004 B1

L11: Entry 12 of 15 File: USPT Sep 24, 2002

DOCUMENT-IDENTIFIER: US 6457004 B1
TITLE: Document retrieval assisting method, system and service using closely displayed areas for titles and topics

Detailed Description Text (22):
FIG. 7 depicts the detail of the search results display area imaging data 34422P1

h e b b g e e e f e e f fc ef b e

(FIG. 4) then. The data is composed of display position, area size, origin position and display contents. The display position shows at which position in the overall interface frame the area is attached; the origin position shows the coordinate of the imaging area lying at the upper left corner of the display area. By scrolling, the value can be modified.

Detailed Description Text (24):
Similarly, FIG. 8 depicts the detail of the topic word display area imaging data 34422P2 (FIG. 4) then. The imaging contents thereof are composed of a line imaging data set representing links of graphs and a character row imaging data set representing the character row of a node. The line is designated with the start point and end point. For example, the first line means that a line should be imaged from coordinate (80, 80) to coordinate (100, 30); and the fifth line means that a character row "topic word-a1" is imaged on a background color green at coordinate (100, 30). The graph on the topic word display area P2 of FIG. 6 is imaged, on the basis of the imaging contents.

Detailed Description Text (37):
FIG. 12 is the detail of the information provider side retrieval assisting routine 1431 (FIG. 10). The routine 1431 starts on receipt of the query from auser side. Firstly at branch 14311, keyword search 143111 or associative search 143112 is carried out according to the designation of a retrieval method on the query. If the query in the example of FIG. 9 is received, the retrieval method is designated as "key word search" and therefore, key word search should be selected. For key word search, retrieval contents storage area 344232 functions as a logical binding of key words, and therefore, an assembly of document numbers containing each key word is obtained with reference to the word/document corresponding data 15D13, to calculate an assembly as the logical binding of them. For associative search, furthermore, a document similar to the document as a key according to the method described in the description of the cluster tree 15D15, should be retrieved. In any case, the search results are expressed as assemblies of sets of document identification numbers and suitability scores for search queries, and they are stored in the decreasing order of suitability score in the search results storage area 1423. The suitability score for key word search can be gained for example from the number of key words contained therein, and for associative search, similarity can be used as the score.

Detailed Description Text (38):
Subsequently, operations including topic word extraction 14312, between-topic word co-occurrence table preparation 143131, between-topic word linking information preparation 143132, topic word graph mapping coordinate calculation routine 143133, topic word/document corresponding table preparation 143141, and document/topic word corresponding table preparation 143142 are carried out, to send back necessary information for representing search results and topic words to users.

Detailed Description Text (40):
Because the method described in "Document retrieval-assisting method and system therefor and document retrieval service by using the same" is used for the topic word extraction 14312 and between-topic word co-occurrence table preparation 143131 from search results, between-topic word linking information preparation 143132, and topic word graph mapping coordinate calculation routine 143133, brief description thereof is simply illustrated herein. By the topic word extraction 14312 routine, the number df(X) of documents in a search results containing each (X) of all the words appearing at least one in the search results is counted. With reference to the document/word corresponding table 15D12, this calculation can be performed in a simple manner. With reference to the word frequency data 15D14 (FIG. 11), additionally, document frequency DF(X) indicating in how many documents these words appear in the entire data base, can be recovered. Since the ratio of df(X) to DF(X) represents the extent as to how unusually frequently word X appears in the search results, a word with a larger value thereof is to be extracted as topic word.

Because the comparison between a general word with a larger frequency and a highly specific word with a smaller frequency at an identical scale is very difficult, words are divided in some classes on the basis of the document frequency df(X) in the search results, to pick up topic words from each frequency class of at good balance.

Detailed Description Text (43):
By topic word graph mapping coordinate calculation routine 143133, the coordinate for arranging a topic word two-dimensionally is calculated on the basis of topic word linking information, under the provision that and all topics words are displayed. For brief description of the method of the U.S. Pat. No. 5,987,460, the document frequency df(X) of each topic word in the search results is on the vertical coordinate. (So as to make the parameter region compact, herein, logarithmic representation or inverse tangent function may be used.) On the horizontal coordinate, firstly, nodes with no link address are uniformly arranged within a predetermined range. Thereafter, horizontal coordinates should be sequentially determined, recursively, by a method comprising uniformly arranging the horizontal coordinates of the nodes with the same link address nodes for which the horizontal coordinates are already determined. Because overlaps of nodes may occur according to the method, furthermore, a right node should be shifted, further toward the right side, if any overlap is present, to avoid overlapping.

Detailed Description Text (52):
Like the case of search results, the selection flag and mark intensity are at initial states of all clear. Graphic display position is represented as a value calculated by a provider side retrieval routine 1431 according to the topic word graph mapping coordinate calculation routine 143133 (FIG. 12). The frequency class is represented as a classification value, depending on the document frequency in the search results of topic words in the topic word extraction routine 14312 (FIG. 12). Class 1 represents a relatively high frequency; Class 2 represents a moderate frequency; and Class 3 represents a relatively low frequency.

Detailed Description Text (58):
FIG. 18 depicts the detail of the parameter 344211 to be used for search results imaging data preparation. There are parameters such as line interval (.DELTA.y), mark display position (x1), mark shift width (.DELTA.x1), bit map mark identifier (Bm), selection window display horizontal coordinate (x2), selection window size (h, v), window display color (CS0) for unselect, window display color for select (CS1), horizontal coordinate of score display position right end (x3), horizontal coordinate of title display position left end (x4), background color (CD) of title display area of document display, title display font (F), and the like. The character rows shown in ( ) are for reference in the description of the routine for generating display data of the search result 3443.

Detailed Description Text (59):
FIGS. 19A through 19C depict the detail of routine for generating display data of the search result 3443, which is used for the search results imaging data update routine 34412 of the retrieval assisting routine 3441 (FIG. 5). At initial presetting 34431, firstly, variable "i" representing display order and variable "y" representing the vertical coordinate value of the display position should be preset at 0. At loop 34432, the following process should be repeated at the number of documents as search results. Firstly at the process 34433, the value of variable "i" and the value of variable "y" should be incremented by 1 and .DELTA.y, respectively. .DELTA.y is a value preset as a line interval value for displaying search results in the parameter 344211 (FIG. 18). (The numerical figure of the vertical coordinate of the display position increases from top to down.) Additionally, the temporary number of a document displayed on the sequential order "i" is substituted with the variable "n". With reference to the search results display order storage area 34424b (FIG. 13B), the value is determined by picking up a number corresponding to the display order i. In the following description,

furthermore, "document with a temporary document number n", if described accurately, should be abbreviated as "document n", if no specific concern of the occurrence of any mistake exists.

Detailed Description Text (60):
Subsequently, mark imaging data preparation routine 34434, selection window imaging data preparation routine 34435, score imaging data preparation routine 34436, and imaging data preparation routine of title, etc., 34437 are performed. The former two are described in detail in FIG. 19B and 19C, respectively. At the score imaging data preparation routine 34436, an imaging data of "position (x3, y), diagram type=character row, attaching position=lower right, character row =(decimal expression of the score of document n)" is added to the search results imaging data 34422P1 (FIG. 7). Herein, x3 is preset as the horizontal coordinate of the right end of the score display position in the search results imaging data preparing parameter 344211 (FIG. 18).

Detailed Description Text (61):
Finally at the imaging data preparation routine of title, etc. 34437, temporal variable col is set to the background color CD (FIG. 18) of the title display area during the display of the document if the document is displayed, and otherwise, col is set to transparent. Whether or not the document is on display is determined, depending on whether or not the identification number of the document (indicated in the document number column of the search results storage area 34424a) is equal to the value of the variable MD to be used in the retrieval assisting routine 3441 (FIG. 5). Continuously, an imaging data of "position (x4, y)", diagram type=character row, attaching position=lower left, background color=col, character row="(title of document n)" is added to the search results imaging data 34422P1. Herein, x4 is a value, parametrically preset as the horizontal coordinate of the left end of the title display position (FIG. 18). The score of the document n and the title of the document n can be picked up from the corresponding column of the search results storage area 34424a.

Detailed Description Text (62):
FIG. 19B is the detail of the mark imaging data preparation routine 34434. By the operation, a process of adding an imaging data to display a mark symbol (check mark, etc.) parameter preset in the variable Bm (FIG. 18) as a bit map identifier for marking, to the search results imaging data 34422P1 (FIG. 7) is repeated at a number of times corresponding to the mark intensity of the document n (recovered from the search results storage area 34424a). For display on the horizontal coordinate (X), the parameter preset value x1 as mark display position is substituted by initial presetting 344341 , and after shifting, mark is shifted each time by a shift corresponding to the similarly preset value .DELTA.x1 as mark shift pitch (FIG. 18) for display. Therefore, a check mark with a broadness in proportion to the mark intensity is drawn.

Detailed Description Text (63):
FIG. 19C depicts the detail of the selection window imaging data preparation routine 34435. At conditional branch 344351, firstly, it is determined whether or not the document n is selected (as indicated by the selection flag in the search results storage area 34424a) and if selected, the window display color (col) is defined as a color (unambiguous color such as red) and otherwise, the color is defined as an ambiguous color (transparency, etc.). Continuously at conditional branch 344352, if it is judged whether the document pushed just immediately beforehand with mouse is in the line MS from top and the position currently designated with mouse is in the line MP from top and that the mouse is in the course of document selection (MM=11), is "n" present in between the position pushed with mouse and the position currently designated, as shown by the formula MS.ltoreq.n.ltoreq.MP or MP.ltoreq.n.ltoreq.MS. if yes, then it is judged whether the article of the position user mouse button was pushed is preliminarily selected or not. If selected, non-selection color CS0 is substituted with the variable col,

and the selection color CS1 is substituted with the variable col, if not selected. By further using the designated value X2 as the horizontal coordinate of selection window and (h, v) as the size of the selection window, an imaging data of "position (x2, y), diagram type=rectangle, size (h, v), color=col" should added to the search results imaging data 34422P1. Thereby, the selection window is colored with the selection color (CS1) of the document at selected state or a document currently under dragging to be put at selection state; otherwise, the document is colored with non selection color (CS2).

Detailed Description Text (91):
The generation of imaging data is done by the routine for generating display data of topic word graph 3444 (FIG. 21A). Firstly, in case of topic word move mode (MM=21), mode determination is done at branch 34441, to record mouse move distance on the variable .DELTA.M. Imaging position of topic word nodes for preparing an imaging data of topic words selected are based on the coordinate written in the topic word storage area 34425 (FIG. 14), but the mouse move from the pushed point should be added to the imaging position for a selected topic word at the process 34445. More specifically, the imaging position shifts by the mouse move. Because .DELTA.M is added to the coordinate when topic words corresponding to the link start or end points are selected even in the linking imaging data preparation routine 34446 (FIG. 21B), and furthermore, links are also transferable together with the transfer of topic words, and are then to be displayed.

Detailed Description Text (101):
At the mode during the move of topic word (MM=21), left mouse is pushed on a topic word node when mouse is pushed just immediately beforehand, so that the topic word falls into selection state immediately after such pushing. When mouse is released in this case, the process 3441MR-P2-1 is executed, to modify the display position coordinate of all topic words at selected state in the topic word storage area 34425, by the difference between the position currently designated with mouse and the position pushed just immediately beforehand. During move since mouse pushing, the same process is executed for calculating the coordinate of an imaging data at the routine for generating display data of topic word graph 3444, but the display position in the topic word storage area 34425 of itself is not modified. Mouse release means the settlement of the move partner of the topic word, so that the coordinate position of the topic word storage area 34425 is rewritten.

13. Document ID: US 6446065 B1

L11: Entry 13 of 15 File: USPT Sep 3, 2002

DOCUMENT-IDENTIFIER: US 6446065 B1
TITLE: Document retrieval assisting method and system for the same and document retrieval service using the same

Detailed Description Text (23):
FIG. 7 depicts the detail of the search results display area imaging data 34422P1 (FIG. 4) then. The data is composed of display position, area size, origin position and display contents. The display position shows at which position in the overall interface frame the area is attached; the origin position shows the coordinate of the imaging area lying at the upper left corner of the display area. By scrolling, the value can be modified.

Detailed Description Text (25):
Similarly, FIG. 8 depicts the detail of the topic word display area imaging data 34422P2 (FIG. 4) then. The imaging contents thereof are composed of a line imaging data set representing links of graphs and a character row imaging data set representing the character row of a node. The line is designated with the start point and end point. For example, the first line means that a line should be imaged from coordinate (80, 80) to coordinate (100, 30); and the fifth line means that a character row "topic word-a1" is imaged on a background color=green at coordinate (100, 30). The graph on the topic word display area P2 of FIG. 6 is imaged, on the basis of the imaging contents.

Detailed Description Text (38):
FIG. 12 is the detail of the information provider side retrieval assisting routine 1431 (FIG. 10). The routine 1431 starts on receipt of the query from a user side. Firstly at branch 14311, keyword search 143111 or associative search 143112 is carried out according to the designation of a retrieval method on the query. If the query in the example of FIG. 9 is received, the retrieval method is designated as "key word search" and therefore, key word search should be selected. For key word search, retrieval contents storage area 344232 functions as a logical binding of key words, and therefore, an assembly of document numbers containing each key word is obtained with reference to the word/document corresponding data 15D13, to calculate an assembly as the logical binding of them. For associative search, furthermore, a document similar to the document as a key according to the method described in the description of the cluster tree 15D15, should be retrieved. In any case, the search results are expressed as assemblies of sets of document identification numbers and suitability scores for search queries, and they are stored in the decreasing order of suitability score in the search results storage area 1423. The suitability score for key word search can be gained for example from the number of key words contained therein, and for associative search, similarity can be used as the score.

Detailed Description Text (39):
Subsequently, operations including topic word extraction 14312, between-topic word co-occurrence table preparation 143131, between-topic word linking information preparation 143132, topic word graph mapping coordinate calculation routine 143133, topic word/document corresponding table preparation 143141, and document/topic word corresponding table preparation 143142 are carried out, to send back necessary information for representing search results and topic words to users.

Detailed Description Text (41):
Because the method described in "Document retrieval-assisting method and system therefor and document retrieval service by using the same" is used for the topic word extraction 14312 and between-topic word co-occurrence table preparation 143131 from search results, between-topic word linking information preparation 143132, and topic word graph mapping coordinate calculation routine 143133, brief description thereof is simply illustrated herein. By the topic word extraction 14312 routine, the number df(X) of documents in a search results containing each (X) of all the words appearing at least one in the search results is counted. With reference to the document/word corresponding table 15D12, this calculation can be performed in a simple manner. With reference to the word frequency data 15D14 (FIG. 11), additionally, document frequency DF(X) indicating in how many documents these words appear in the entire data base, can be recovered. Since the ratio of df(X) to DF(X) represents the extent as to how unusually frequently word X appears in the search results, a word with a larger value thereof is to be extracted as topic word. Because the comparison between a general word with a larger frequency and a highly specific word with a smaller frequency at an identical scale is very difficult, words are divided in some classes on the basis of the document frequency df(X) in the search results, to pick up topic words from each frequency class of at good balance.

Detailed Description Text (44):
By topic word graph mapping coordinate calculation routine 143133, the coordinate for arranging a topic word two-dimensionally is calculated on the basis of topic word linking information, under the provision that and all topics words are displayed. For brief description of the method of the U.S. patent application Ser. No. 08/888,017, the document frequency df(X) of each topic word in the search results is on the vertical coordinate. (So as to make the parameter region compact, herein, logarithmic representation or inverse tangent function maybe used.) On the horizontal coordinate, firstly, nodes with no link address are uniformly arranged within a predetermined range. Thereafter, horizontal coordinates should be sequentially determined, recursively, by a method comprising uniformly arranging the horizontal coordinates of the nodes with the same link address nodes for which the horizontal coordinates are already determined. Because overlaps of nodes may occur according to the method, furthermore, a right node should be shifted, further toward the right side, if any overlap is present, to avoid overlapping.

Detailed Description Text (53):
Like the case of search results, the selection flag and mark intensity are at initial states of all clear. Graphic display position is represented as a value calculated by a provider side retrieval routine 1431 according to the topic word graph mapping coordinate calculation routine 143133 (FIG. 12). The frequency class is represented as a classification value, depending on the document frequency in the search results of topic words in the topic word extraction routine 14312 (FIG. 12). Class 1 represents a relatively high frequency; Class 2 represents a moderate frequency; and Class 3 represents a relatively low frequency.

Detailed Description Text (59):
FIG. 18 depicts the detail of the parameter 344211 to be used for search results imaging data preparation. There are parameters such as line interval (.DELTA.y), mark display a position (x1), mark shift width (.DELTA.x1), bit map mark identifier (Bm), selection window display horizontal coordinate (x2), selection window size (h, v), window display color (CS0) for unselect, window display color for select (CS1), horizontal coordinate of score display position right end (x3), horizontal coordinate of title display position left end (x4), background color (CD) of title display area of document display, title display font (F), and the like. The character rows shown in ( ) are for reference in the description of the routine for generating display data of the search result 3443.

Detailed Description Text (60):
FIGS. 19A through 19C depict the detail of routine for generating display data of the search result 3443, which is used for the search results imaging data update routine 34412 of the retrieval assisting routine 3441 (FIG. 5). At initial presetting 34431, firstly, variable "i" representing display order and variable "y" representing the vertical coordinate value of the display position should be preset at 0. At loop 34432, the following process should be repeated at the number of documents as search results. Firstly at the process 34433, the value of variable "i" and the value of variable "y" should be incremented by 1 and .DELTA. y, respectively. .DELTA.y is a value preset as a line interval value for displaying search results in the parameter 344211 (FIG. 18). (The numerical figure of the vertical coordinate of the display position increases from top to down.) Additionally, the temporary number of a document displayed on the sequential order "i" is substituted with the variable "n". With reference to the search results display order storage area 34424b (FIG. 13B), the value is determined by picking up a number corresponding to the display order i. In the following description, furthermore, "document with a temporary document number n", if described accurately, should be abbreviated as "document n", if no specific concern of the occurrence of any mistake exists.

Detailed Description Text (61):
Subsequently, mark imaging data preparation routine 34434, selection window imaging

data preparation routine 34435, score imaging data preparation routine 34436, and imaging, data preparation routine of title, etc., 34437 are performed. The former two are described in detail in FIGS. 19B and 19C, respectively. At the score imaging data preparation routine 34436, an imaging data of "position (x3, y), diagram type =character row, attaching position=lower right, character row=(decimal expression of the score of document n)" is added to the search results imaging data 34422P1 (FIG. 7). Herein, x3 is preset as the horizontal coordinate of the right end of the score display position in the search results imaging data preparing parameter 344211 (FIG. 18).

Detailed Description Text (62):
Finally at the imaging data preparation routine of title, etc. 34437, temporal variable col is set to the background color CD (FIG. 18) of the title display area during the display of the document if the document is displayed, and otherwise, col is set to transparent. Whether or not the document is on display is determined, depending on whether or not the identification number of the document (indicated in the document number column of the search results storage area 34424a) is equal to the value of the variable MD to be used in the retrieval assisting routine 3441 (FIG. 5). Continuously, an imaging data of "position (x4, y), diagram type=character row, attaching position=lower left, background color=col, character row="(title of document n)" is added to the search results imaging data 34422P1. Herein, x4 is a value, parametrically preset as the horizontal coordinate of the left end of the title display position (FIG. 18). The score of the document n and the title of the document n can be picked up from the corresponding column of the search results storage area 34424a.

Detailed Description Text (63):
FIG. 19B is the detail of the mark imaging data preparation routine 34434. By the operation, a process of adding an imaging data to display a mark symbol (check mark, etc.) parameter preset in the variable Bm (FIG. 18) as a bit map identifier for marking, to the search results imaging data 34422P1 (FIG. 7) is repeated at a number of times corresponding to the mark intensity of the document n (recovered from the search results storage area 34424a). For display on the horizontal coordinate (X), the parameter preset Value x1 as mark display position is substituted by initial presetting 344341 , and after shifting, mark is shifted each time by a shift corresponding to the similarly preset value .DELTA.x1 as mark shift pitch (FIG. 18) for display. Therefore, a check mark with a broadness in proportion to the mark intensity is drawn.

Detailed Description Text (64):
FIG. 19C depicts the detail of the selection window imaging data preparation routine 34435. At conditional branch 344351, firstly, it is determined whether or not the document n is selected (as indicated by the selection flag in the search results storage area 34424a) and if selected, the window display color (col) is defined as a color (unambiguous color such as red) and otherwise, the color is defined as an ambiguous color (transparency, etc.). Continuously at conditional branch 344352, if it is judged whether the document pushed just immediately beforehand with mouse is in the line MS from top and the position currently designated with mouse is in the line MP from top and that the mouse is in the course of document selection (MM=11), is "n" present in between the position pushed with mouse and the position currently designated, as shown by the formula MS.ltoreq.n.ltoreq.MP or MP.ltoreq.n.ltoreq.MS. if yes, then it is judged whether the article of the position user mouse button was pushed is preliminarily selected or not. If selected, non-selection color CS0 is substituted with the variable col, and the selection color CS1 is substituted with the variable col, if not selected. By further using the designated value X2 as the horizontal coordinate of selection window and (h, v) as the size of the selection window, an imaging data of "position (x2, y), diagram type=rectangle, size (h, v), color=col" should added to the search results imaging data 34422P1. Thereby, the selection window is colored with the selection color (CS1) of the document at selected state or a document currently

under dragging to be put at selection state; otherwise, the document is colored with non selection color (CS2).

Detailed Description Text (92):
The generation of imaging data is done by the routine for generating display data of topic word graph 3444 (FIG. 21A). Firstly, in case of topic word move mode (MM=21), mode determination is done at branch 34441, to record mouse move distance on the variable .DELTA.M. Imaging position of topic word nodes for preparing an imaging data of topic words selected are based on the coordinate written in the topic word storage area 34425 (FIG. 14), but the mouse move from the pushed point should be added to the imaging position for a selected topic word at the process 34445. More specifically, the imaging position shifts by the mouse move. Because .DELTA.M is added to the coordinate when topic words corresponding to the link start or end points are selected even in the linking imaging data preparation routine 34446 (FIG. 21B), and furthermore, links are also transferable together with the transfer of topic words, and are then to be displayed.

Detailed Description Text (102):
At the mode during the move of topic word (MM=21), left mouse is pushed on a topic word node when mouse is pushed just immediately beforehand, so that the topic word falls into selection state immediately after such pushing. When mouse is released in this case, the process 3441MR-P2-1 is executed, to modify the display position coordinate of all topic words at selected state in the topic word storage area 34425, by the difference between the position currently designated with mouse and the position pushed just immediately beforehand. During move since mouse pushing, the same process is executed for calculating the coordinate of an imaging data at the routine for generating display data of topic word graph 3444, but the display position in the topic word storage area 34425 of itself is not modified. Mouse release means the settlement of the move partner of the topic word, so that the coordinate position of the topic word storage area 34425 is rewritten.

☐ 14. Document ID: US 5978753 A

L11: Entry 14 of 15 File: USPT Nov 2, 1999

DOCUMENT-IDENTIFIER: US 5978753 A
TITLE: Context parameters for establishing data communication patterns in a distributed control and measurement system

Brief Summary Text (12):
In this architecture, the distinct names, e.g. boiler.sub.-- 1.sub.-- pressure, are replaced by a collection of attributes, termed "context parameters", that collectively specify the same logical relationship to the real world application. Context parameters may include name, location, units, aggregate or operational parameters, and time. The node applications apply application specific constraints to the context parameters to describe a unique logical binding statement that logically admits only the desired relationship to the physical world, and use these constraint-based specifications as the basis for establishing the communication patterns.

Brief Summary Text (14):
Proper selection of context parameters and the constraints allows application specificity without the extensive use of ad hoc application specific names. Instead

of ad hoc names, most context parameters will use standard domain definitions e.g. GPS coordinates, or application domain standard definitions or names, e.g. "differential-pressure".

☐ 15. Document ID: US 4491908 A

L11: Entry 15 of 15 File: USPT Jan 1, 1985

DOCUMENT-IDENTIFIER: US 4491908 A
TITLE: Microprogrammed control of extended integer and commercial instruction processor instructions through use of a data type field in a central processor unit

Detailed Description Text (80):
FIGS. 7, 8 and 9 show the maps of address syllables (AS) 1, 2 and 3 respectively. EII 1 execution code 6C.sub.16 specifies AS 1, EII 23 execution code 7C.sub.16 with bit position 8 of word 2 at logical ZERO specifies AS 2, and at logical ONE specifies AS 3. The coordinates of the maps are M and N, bit positions 9 through 11 and 12 through 15 respectively of the AS. The following table defines the elements of the maps of FIGS. 7, 8 and 9.

Detailed Description Text (81):
An address syllable 1 (AS 1), FIG. 7, coordinates (5,1) through (5,7) select REG. Where the EII data type is an address, the coordinates select registers B1 through B7 ((5,4) selects register B4). Where the EII data type is a double word, an AS 1 of (5,3), (5,5) or (5,7) selects two 16-bit registers R2/R3, R4/R5 or R6/R7 respectively.

Detailed Description Text (82):
AS 3, FIG. 9, coordinates (5,1) through (5,7) select REG. Where the EII data type is a double word or address, then coordinates (5,4) select register K4 for processing the double word or address.

Detailed Description Paragraph Table (1):
_____ D D indicates a one word, 16-bit signed displacement (in words) that follows the address syllable, where -2.sup.15 .ltoreq. D .ltoreq. 2.sub.15 - 1. .DELTA. .DELTA. indicates a two word, 32-bit signed displacement in words that follows the address syllable, where -2.sup.31 .ltoreq. .DELTA. .ltoreq. 2.sub.31 - 1. @ Indirect operator. +R Specifies indexing, where -2.sup.15 .ltoreq. R .ltoreq. + 2.sub.15 - 1. +K Specifies indexing, where -2.sup.31 .ltoreq. K .ltoreq. 2.sup.31 - 1. FB FT + L. FT Address of the top element of the current active frame in the stack. L Length in words of active stack frame. Auto increment (B.uparw., R.uparw. or FT.uparw. indicates post-incrementation). Auto decrement (.dwnarw.B, .dwnarw.R or .dwnarw.FT indicates pre-decrementation). IMA Immediate address. IA Intermediate address. B Base register. K Double word operand register. R Word and half word operand register. P Program counter. For the purpose of P Relative addressing, the following definition is used: Pd: Points to the displacement to be added to Pd. (At the completion of an instruction, P points to the first word of the succeeding instruction.) ( ) Logical binding. [ ] Contents of. + Addition operation. IMO Immediate operand. IV Interrupt vector. O Specifies an offset in bits. O is recognized only when executing subword instructions: For bit instructions, O specifies an offset in bits of 0 .ltoreq. 0 .ltoreq. 15. For digit instructions, the high order 2 bits allow an offset of either 0, 4, 8 or 12 bits. For byte instructions, only the high order bit of the offset field is used.

h e b b g e e e f e e f fc ef b e

Thus, O is interpreted as an offset of either 0 or 8 bits. For all other instructions, O is ignored. - Subtraction operation. .times. Multiplication operation. .ltoreq. Is replaced by. EA Effective address.

Clear | Generate Collection | Print | Fwd Refs | Bkwd Refs | Generate OACS

Terms	Documents
logical binding and L9	15

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h e b b g e e e f e e f fc ef b e